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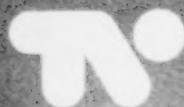
ABSTRACT

Through a series of case studies, this report examines the varied connections between selected Ontario schools and the TVOntario programs and services designed to support teaching and learning. The case studies profile nine school districts: Waterville, Countryside, Edgewater, Cliffside, Pleasantville, Rocky, Satellite City, Centretown, and Riverside. The research focuses on four aspects of the school environment: (1) areas of change and the change process; (2) television and video use; (3) microcomputer use; and (4) relationship with TVOntario. For each aspect, the report synthesizes the case studies, providing background information, a summary of findings, and a discussion of the findings in relation to TVOntario. Five recommendations for TVOntario follow the main section of the report together with summaries of the individual case studies. A final short section outlines the comments of the Ministry of Education officials on the issues. A summary of the study is provided in both English and French, and a glossary of 11 acronyms is included. (12 references) (SD)

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Number

TVONTARIO AND THE SCHOOL SYSTEM

A Report Based on Case Studies in Nine School Boards

Title

Project Leader: Donna Sharon

Research Officers: Revital Maron and Anita Sheth

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January 1990

Date

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Working Paper 89-9**TVONTARIO AND THE SCHOOL SYSTEM:
A Report Based on Case Studies in Nine School Boards****Project Leader: Donna Sharon****Research Officers: Revital Marom and Anita Sheth****January 1990**

Director, Planning and Development Research: Judith Tobin
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SUMMARY

Through a series of nine case studies, this report examines the varied connections between selected Ontario schools and the TVOntario programs and services designed to support teaching and learning. This research focuses on four aspects of the school environment:

- areas of change and the change process
- television and video use
- microcomputer use
- relationship with TVOntario

For each, the report synthesizes the case studies, providing background information, a summary of the findings, and a discussion of these in relation to TVOntario. Recommendations for TVOntario activity follow this main section of the report, as do condensed versions of the nine case studies. A final short section outlines the comments of Ministry of Education officials on the issues.

The report's most important findings in each of the four areas are summarized below:

- **Areas of change and the change process.** Since 1982, most boards have made considerable progress in adopting the Ministry-initiated CRDI (Curriculum Review, Development and Implementation) process for introducing new curriculum. The consequent growing uniformity of the curriculum and the sizeable increases in professional development for teachers expand opportunities to promote the use of TVOntario programs and services in the schools. One board surveyed has begun to incorporate TVOntario programming directly into its curriculum guidelines.

- **Television and video use.** Television and video are seen as essential components of the teaching process and are highly valued for their ability to give visual dimensions to concepts. Use and demand for video programs are growing and boards are looking to TVOntario as well as to other producers to meet this increasing demand. All but the smallest boards have media centres and catalogues of their programs; however, services to help teachers find suitable programs or prepare lessons using video are easily available in only a few boards and schools. School or department video libraries are growing in number and size. In all but a few schools, teachers have access to VCRs but must book them in advance. The use of real time television in the classroom has continued to decline. To improve image quality, media centres generally prefer buying prerecorded cassettes to recording off-air.

- **Microcomputer use.** In all schools, computers are very important and teachers are encouraged to use them. Icons (whose purchase is subsidized by the Ministry of Education) are a popular system as, to a lesser extent, are Apples and IBMs. Although the need for more educational software was expressed, computers are valued highly for their abilities in word processing and spread sheet analysis. Boards and schools have invested heavily in teacher training to support the emphasis on computers across the curriculum. In fact, in several boards, much of the attention previously given television and video has currently shifted to computers. However, each technology is considered to offer unique benefits for students and its value is seen to depend on the use made by the teacher.

- **Relationship with TVOntario.** TVOntario is highly regarded for its programming and services and is applauded for the recent increase in curriculum-related material. Since the purpose of this study was, in part, to solicit information on how TVO might better meet learning needs, statements of satisfaction and appreciation were coupled with suggestions for enhanced products and services.

Five recommendations for TVOntario activity have been drawn from the case studies:

- **Recommendation 1:** To counterbalance the recent emphasis on introducing computers in the schools, that TVOntario implement a plan to re-awaken the Ministry of Education and the boards to video's benefits, availability and ease of use.
- **Recommendation 2:** That TVOntario work to integrate further awareness and use of educational video into Ministry of Education policies and curriculum guidelines, board curriculum development processes and board and Ministry teacher training. Four strategies would support this work: discussions with Ministry staff to demonstrate benefits and importance of including TVOntario programs and services in the curriculum they develop; negotiations with staff at the Ministry and faculties of education to stimulate collaborative projects that increase student teacher training in the use of television and video; assistance to school boards in planning curriculum documents and professional development activities and careful targeting of TVO print support materials to maximize use by teachers and boards.
- **Recommendation 3:** That TVOntario develop a system to monitor and get feedback from workshops and presentations conducted on its behalf by board media coordinators, consultants, and workshop specialists, especially in northern and smaller boards.
- **Recommendation 4:** That TVOntario produce even more programming that supports new curriculum and teaching methods as closely as possible, for release at the same time as curriculum guidelines. Attention should be paid to providing a Canadian perspective; to incorporating changing teaching methods (such as small group and independent learning) into program design; and to ensuring that production quality is appealing to the increasingly sophisticated viewers.

- **Recommendations 5:** That TVOntario develop and institute procedures to enhance or expand support services, specifically by providing more advance notice of copyright renewals and expirations; by publishing print support material at the same time as the program is released; possibly even by coordinating school boards' purchases of video programs from other (i.e. non-TVO) suppliers; by rescheduling broadcast of schools programs in light of decreasing off-air classroom use to increase taping block schedules; by providing precise information and direction about copyright regulations; and by providing the opportunity to order videotapes by telephone and computer.

Research on this project began in September 1988; the case studies were conducted in nine school boards during the first half of 1989. The boards were chosen to represent differences in regions of the province, in community size, and in extent of past contact with TVO.

RÉSUMÉ

Ce rapport présente la nature du lien qui existe entre certaines écoles choisies de l'Ontario et les émissions et services de TVOntario conçus à l'appui des activités d'enseignement et d'apprentissage. Cette recherche est basée sur neuf études de cas et porte sur quatre aspects du milieu scolaire :

- les domaines et processus de changement
- l'utilisation de la télévision et de la vidéo
- l'utilisation du micro-ordinateur
- le rapport avec TVOntario

Pour chacun de ces aspects, le rapport décrit brièvement les résultats des études de cas, situe ces résultats dans leur contexte et en fait une analyse par rapport à TVOntario. Tout comme le fait chaque présentation condensée des études de cas, le rapport se termine par une série de recommandations adressées à TVOntario. Un court chapitre fait état, en conclusion, des commentaires émis par les fonctionnaires du ministère de l'Éducation sur ces questions.

Voici, en résumé, les plus importantes constatations qui ressortent de l'étude des quatre aspects considérés :

- **Les domaines et processus de changement.** Depuis 1982, la plupart des conseils scolaires ont fait des progrès considérables dans l'application du cycle d'évaluation, d'élaboration et de mise en œuvre des programmes scolaires, processus créé par le ministère de l'Éducation en vue de l'introduction de nouveaux programmes. L'uniformité croissante des programmes qui en a résulté et l'augmentation appréciable du nombre de programmes de perfectionnement offerts aux enseignants ouvrent de nouvelles possibilités de promouvoir TVOntario dans les écoles. Un des conseils scolaires considérés par l'étude intègre depuis peu les émissions de TVOntario dans ses programmes.

- **L'utilisation de la télévision et de la vidéo.** La télévision et la vidéo sont perçues comme des composantes essentielles des méthodes d'enseignement et sont très appréciées pour la dimension visuelle et expérimentale qu'elles ajoutent aux concepts. Le taux d'utilisation et de demande d'émissions sur vidéocassette augmente et les conseils scolaires se tournent vers TVOntario et vers d'autres producteurs pour satisfaire leurs attentes. Dans la plupart des conseils, la majeure partie des vidéocassettes offertes aux enseignants proviennent de TVOntario. Tous les conseils scolaires, à l'exception des plus petits, possèdent un centre de ressources médiatiques et des catalogues des émissions disponibles ; toutefois, peu de conseils scolaires et d'écoles sont en mesure d'offrir des services aptes à aider les enseignants à trouver les émissions adéquates ou à préparer leurs leçons en s'inspirant de vidéocassettes. Le nombre et la taille des vidéothèques augmentent dans les écoles et les départements. À quelques exceptions près, les enseignants ont accès, dans toutes les écoles, à un magnétoscope, bien qu'ils doivent le réserver à l'avance. En classe, l'utilisation réelle de la télévision en direct continue de diminuer. Pour assurer la qualité de l'image, les responsables des centres de ressources médiatiques préfèrent généralement acheter des vidéocassettes préenregistrées plutôt que d'enregistrer eux-mêmes des émissions.
- **L'utilisation du micro-ordinateur.** Dans l'ensemble, les ordinateurs s'avèrent très importants et on encourage les enseignants à les utiliser. ICONS (dont l'achat est subventionné par le ministère de l'Éducation) est un système bien connu tout comme le sont, dans une moindre mesure, les ordinateurs Apple et IBM. Bien qu'on ait exprimé la nécessité d'un plus grand nombre de didacticiels, les ordinateurs sont particulièrement appréciés pour le traitement de texte et pour le chiffrier. Les conseils scolaires et les écoles ont consacré beaucoup d'efforts à la formation des enseignants, compte tenu de l'importance accordée à l'utilisation de l'ordinateur dans le cadre des programmes d'études. De fait, dans plusieurs conseils, l'attention accordée auparavant à la télévision et à la vidéo a été temporairement redirigée vers l'ordinateur. Toutefois, on considère que chaque technologie offre aux élèves des avantages qui lui sont propres et la valeur de chacune dépend de l'usage que le professeur en fait.

- **Le rapport avec TVOntario.** TVOntario est très apprécié pour la qualité de ses émissions et de ses services, et on accueille avec enthousiasme l'augmentation récente du matériel dont le contenu est lié aux programmes scolaires. Puisque cette étude visait, entre autres, à recueillir des données sur la façon dont TVO pourrait mieux répondre aux besoins d'apprentissage, les appréciations exprimées s'accompagnaient de suggestions pour améliorer les produits et services de TVOntario.

Les cinq grandes recommandations suivantes à l'égard de l'activité de TVOntario se dégagent des études de cas :

1. Afin de contrebalancer la tendance récente visant à mettre l'accent sur l'introduction des ordinateurs dans les écoles, il serait opportun que TVOntario envisage de sensibiliser le ministère de l'Éducation et les conseils scolaires aux avantages de la vidéo, à son accessibilité et à sa facilité d'usage.
2. Que TVOntario s'efforce d'intégrer davantage la vidéo éducative dans les politiques et les programmes-cadres du ministère de l'Éducation, dans les procédés d'élaboration de programmes des conseils scolaires et dans la formation des enseignants offerte par le ministère et les conseils scolaires. Quatre stratégies sont préconisées à cet effet : discussions avec les fonctionnaires du ministère pour démontrer les avantages que présente le fait d'inclure les émissions et les services de TVOntario dans les programmes qu'ils élaborent ; négociations avec les fonctionnaires du ministère et les facultés d'éducation pour favoriser la mise en œuvre de projets coopératifs visant à former davantage les futurs enseignants à l'utilisation de la télévision et de la vidéo ; aide aux conseils scolaires dans la préparation des documents relatifs aux programmes d'études et des activités de perfectionnement ; et un effort particulier, de la part de TVO, pour mettre à la disposition des enseignants et des conseils scolaires son matériel pédagogique imprimé.

3. Que TVOntario mette au point un système lui permettant de recueillir du "feedback" lors des ateliers et présentations animés en son nom par des coordonnateurs des médias rattachés aux conseils scolaires, et par des conseillers et des spécialistes surtout dans les conseils scolaires de plus petite taille et dans ceux qui sont situés dans le nord de la province.
4. Que TVOntario produise, en nombre encore plus grand, des émissions étroitement liées aux nouveaux programmes et aux méthodes d'enseignement ; que ces émissions soient disponibles en même temps que les programmes-cadres. Dans la conception même des émissions, on devrait attacher une importance particulière à la réalité canadienne, tenir compte de l'évolution des méthodes d'enseignement (apprentissage en groupe restreint et autonome) et s'assurer que la qualité de la production répond aux attentes de téléspectateurs de plus en plus exigeants.
5. Que TVOntario élabore et mette en œuvre des méthodes visant à améliorer ou à élargir les services de soutien, notamment en accordant un préavis plus long en matière de renouvellement et d'expiration des droits d'auteur ; en publiant des documents d'accompagnement qui soient disponibles en même temps que l'émission ; en coordonnant, si cela était possible, les achats d'émissions sur vidéocassette effectués par les conseils scolaires auprès d'autres fournisseurs (non affiliés à TVOntario) ; en révisant l'horaire des émissions scolaires pour favoriser l'enregistrement de blocs d'émissions, compte tenu de la diminution de l'utilisation en salle de classe des émissions diffusées en direct ; en fournissant des indications et des renseignements précis en matière de réglementation des droits d'auteur ; en offrant un service de commande des vidéocassettes par téléphone et par ordinateur.

La recherche effectuée dans le cadre de cette étude a commencé en septembre 1988 ; les études de cas ont été réalisées auprès de neuf conseils scolaires au cours de la première moitié de 1989. Les conseils étaient représentatifs des différentes régions de la province, en fonction de la population et de l'étendue des relations qu'ils avaient entretenues auparavant avec TVOntario.

INTRODUCTION

TVOntario's school programs for children and youth support Ontario's curriculum from kindergarten to high school graduation, enhancing teaching and facilitating learning. This study (which began in September 1988 and continued with case studies into 1989) is a component of TVO's ongoing mission better to understand and, in turn, to promote better understanding of educational television and video as tools for teaching and learning. It examines four aspects of the school environment:

- areas of change and the change process (with reference to the Ministry CRDI process [1]);
- television and video use; *
- microcomputer use;
- relationship with TVOntario.

In each of these areas, the report provides background information, summaries of the findings and a discussion of these in relation to TVOntario. A separate section presents the recommendations extrapolated from the findings. The report concludes with summaries of the nine case studies, followed by an overview of comments made by Ministry of Education officials on the aspects of the school environment under discussion.

This project builds on earlier TVO research that identified the factors that encourage successful classroom experiences with television and video. These include the appeal of the programs to teachers, reliable access to equipment and programs, encouragement to use video or television and availability of professional development activities [2]. These findings were incorporated into the design of the project reported here, as were the views and questions of TVOntario managers and directors in the Children, Youth, and Educational Services departments.

This research report will be followed by a study of the use of television and video in French-language schools and by a survey of Ontario teachers in English-language schools to update the information about use of video collected in 1985. Additional studies of how teachers use video in their lessons and of the benefits of video for students are under consideration.

A glossary of the many acronyms used in this report immediately precedes the bibliography.

* Throughout this report "television" describes programming viewed directly off-air; "video" refers to pre-taped programming viewed with a videocassette recorder.

RESEARCH METHOD

Many of the TVOntario school research studies conducted during the 1970s and early 1980s surveyed school board media coordinators and teachers and monitored school use of television and videotape as well as access to equipment, programs and teacher training. The present research selected a case study approach in order to get more in-depth, albeit narrowly focused, feedback on the links between TVOntario and the school system. This research gathers personal responses and observations from several perspectives as well as quantitative information on the use of video and technology in schools.

Since the Ministry of Education plays a central role in setting policy and drawing up curriculum guidelines, the project began by interviewing six Ministry officials with responsibilities in curriculum, educational technology and policy, planning and research. Their views served as background information for the case studies of the school boards and are summarized in the final section of this report.

Nine school boards were chosen to represent differences in region of the province, in community size and in extent of past contact with TVOntario. The nine boards include two centrally located city boards and one that is in a more suburban environment, three that are in small cities and three that are in towns of various sizes. The smallest of the nine boards has five schools, the largest over 150. Four of the nine boards are spread across the northern regions; they were chosen both to reflect the substantial geographic size of the north and to ensure that areas distant from Toronto were well represented. The chart that precedes the case study reports shows the boards' locations and the number of schools within their boundaries. In the case study reports, the identities of the boards have been disguised to allow participants to speak freely. Information is given about the board's general location and the economic base of its community.

In each of the nine boards, interviews were conducted with the director, a superintendent or board official responsible for curriculum and the manager or coordinator of media services. The total number of board level interviews was 27. Within the nine boards, 23 elementary and 13 secondary schools were involved in the case studies. The principals of these 36 schools were interviewed and questionnaires were distributed to all of their teachers. These

questionnaires were completed by 272 of 411 elementary teachers (66%) and by 365 of 813 secondary teachers (45%). To supplement the information from the teacher questionnaires, focus group discussions were held with teachers in one school in eight of the nine boards. These groups varied in size from six to 20 teachers and the discussions usually lasted between one and one and-a-half hours. Scheduling difficulties precluded holding a focus group in the ninth board. The focus group discussions and all but one of the interviews were recorded on audiocassettes and transcribed.

Research findings from the boards, schools and teachers were synthesized in the general report, in the case study summaries, and in the recommendations for TVOntario activity. The information collected contributes to the overall portrayal of each board but cannot be generalized beyond the particular circumstances in which it was obtained. That is, information provided by teachers describes their individual situations only and cannot be assumed to characterize the board as a whole.

The many positive comments and feelings about TVOntario are usually general and are reported in this way. It should be kept in mind that favorable reports are often less extensive and specific than the descriptions of shortcomings and suggestions upon which the recommendations of this report are based.

AREAS OF CHANGE AND THE CHANGE PROCESS

Background

In recent years the relationship between the Ministry and the school boards has been changing. In general, the Ministry issues policy and curriculum guidelines, which are sent to the boards, where more detailed curriculum documents are developed. During the 1970s, the Ministry became concerned that their documents were having less influence than expected on the education system and on the teaching and learning activities going on in schools. On the basis of discussions and initial board planning processes undertaken during the early 1980s, the Ministry introduced a process for Curriculum Review, Development and Implementation (CRDI) in 1986. As they issue new policies and curriculum guidelines, Ministry officials expect boards to formulate an implementation process that suits their own situation. Recent Ministry guidelines give more attention to teaching methods and learning processes than previously and they indicate a growing interest in preparing students for their future in the workforce.

Findings

- **Areas of change.** The two largest of the nine boards studied indicate they are able to assess and integrate the many policies and curriculum guidelines set out by the Ministry. Mid-size and smaller boards concentrate on areas where the Ministry places greater emphasis and where Ministry funding is available. In recent years, areas of attention have included activity-based and student-centred instruction, especially in elementary schools; computers across the curriculum; French immersion; development of basic, general and academic secondary programs; and the extension of funding to the senior grades in Roman Catholic separate schools. New curriculum guidelines have been distributed to the boards in science, geography, language arts and English. New policy documents such as *Partners in Action* have emphasized the importance of the school library as a source of varied print and media materials that can be used to individualize teaching methods.

- **Use of the CRDI process.** Although there are variations in the ways that boards are implementing new curriculum and policy from the Ministry, a CRDI type process is found in eight of the nine boards studied, that is, in all but the smallest board. The director of this board (Countryside) is looking for ways to adopt the CRDI model without any board staff. In another board (Centretown), a similar implementation strategy had been introduced in advance of the Ministry model and some advantages of their approach are suggested. In the largest of the nine boards, problems of applying the model in a large organization are mentioned (Satellite City). Another of the boards using the CRDI approach (Edgewater) expresses some concern about the rigidity and the top-down nature of this process.
- **Opportunities for input in the change process.** In many boards, the change process has led to growing involvement of teachers, principals and department heads in developing and implementing new curriculum and teaching approaches. Board superintendents and consultants, elementary principals, secondary department heads and "activist" teachers are usually the most influential participants in the process. Most boards have increased their professional development programs substantially to support the implementation of new practices. The review or evaluation aspect of the cyclical CRDI process is the most controversial and problematic when assessing both the need to revise curriculum and the results of recent curriculum changes.
- **Growing uniformity of curriculum.** The CRDI approach has led to a greater uniformity of curriculum among school boards across the province. Among the schools within the boards there is also evidence of greater centralization than in past years, when each school had more independence to plan its own curriculum. Yet, one of the nine boards studied (Waterville) is placing greater emphasis on school-centred decision making in the adoption of new programs.
- **Incorporation of TVO resources into curriculum.** One of the nine school boards (Rocky) has recently incorporated TVOntario resources into the development and introduction of new science curriculum.

Discussion

In response to the growing uniformity of the curriculum, TVOntario has recently been able to design programs to follow the curriculum more closely. It is this kind of core-support programming that is particularly valued by the teachers surveyed and interviewed. Consequently, the demand for and use of such programming can be expected to grow substantially. At the same time, the increase in the amount of in-service training for teachers in new curriculum and teaching methods offers new opportunities for demonstrating the value of video as a teaching tool.

Despite this potential, this study shows that TVOntario programs are as yet not often incorporated into curriculum development and in-service training. Recently, TVOntario's Educational Services has begun to develop exactly this type of connection and integration. In this vein, one suggestion is that TVOntario expand its work with the boards themselves in curriculum implementation and in integrating materials into board presentations for teachers.

While this research once again confirms the value of programs that are closely linked with curriculum, there is considerable interest in new designs and formats for educational video. For example, classrooms that include cooperative learning activities seem to provide successful experiences for students. In such classrooms, students learn to work in small groups toward a common learning purpose. If this approach becomes widespread, new types of videos designed to support such collaboration would prove valuable.

TELEVISION AND VIDEO USE

Background

Even though television was originally developed with educational applications in mind, and despite the sporadic in-school use of off-air television broadcasts in the 1960s, it was not until the next decade that most jurisdictions made a concerted effort to harness the educational potential of the new medium. It was partly to respond to the widespread enthusiasm for television as a teaching tool that TVOntario was created in 1970. A discussion of the use of television and video in Ontario's classrooms is therefore almost inextricably linked to TVO's two decades of work in increasing the use of programming in schools and enhancing its benefits. Simply to avoid repetition of TVO-specific findings, this section will offer general discussion of boards' and schools' ways of organizing and administering their use of television and video. The section "Relationship with TVOntario" will incorporate material related to the network, whether referring to programming, support services or teacher training.

This section first examines the media centre services in the nine school boards, outlining their support for the use of television and video in the schools. These findings are followed by those on school-based (rather than board-centralized) use of television and video.

The 1985 TVOntario study of school use of television and video [3] indicated that 59 percent of elementary teachers and 51 percent of secondary teachers had used video or television in the current or preceding school year. Although this 1989 study indicates that teachers' use of video has increased, numbers gathered in the case studies cannot be generalized to the board or province as a whole. The winter 1990 survey now being planned will provide current statistics to update the 1985 figures.

Findings - Board Media Centres and Services

- **Media centres.** Eight of the nine boards in this study are served by a media centre. The exception is the smallest board (Countryside), which has only recently acquired its own director of education for the board. Media centre coordinators and their staff serve as distributors for film, video and AV materials. Sometimes related print materials, additional VCRs, a preview service and computer software are provided by the media centre as well.
- **Media centre use.** Media centres are used more often by elementary teachers as many secondary schools have AV technicians who draw resources to teachers' attention and maintain departmental libraries of video and equipment.
- **Media catalogues.** Seven of the nine boards publish board media catalogues that are the main source of video information for teachers. Catalogues are issued every year or two, with interim supplements. Most catalogues are arranged by program title and by subject heading, usually using Dewey decimal headings. One catalogue lists the programs by school course or subject and grade, making it particularly easy for teachers to select suitable programs. Four of the nine boards record catalogue information electronically.
- **Teacher awareness of media centre resources.** Media centre catalogues are widely distributed and principals and teachers are generally satisfied with the services of their media centres. Yet it is clear that teachers are often unaware of the full extent of resources and services available - programs, teachers' guides, and teacher training services. (The recent summative evaluation of the *Concepts in Science* series conducted by the TVOntario department of Evaluation and Project Research found that lack of information was the main reason for not using the programs [4]).

- **Information distribution and teacher training.** Three of the eight media centres indicate that they consider it part of their work to inform teachers about media resources that meet curriculum needs in different subject areas. These three centres serve one of the smallest boards, a mid-sized board and a large board. Occasionally they offer training in techniques for using video.
- **Availability of videos.** Problems with availability of specific videos are unusual, although on occasion the same tape is requested at the same time by several teachers. Media centre services would be improved if more copies of important curriculum-related programs were kept on hand, ideally in school and department libraries.
- **Video collections within individual schools.** While some media centres encourage secondary school departments or school libraries to develop their own video collections, others do not. In one board (Centretown), school and department video libraries were suggested as a remedy for the problems teachers find with the advance booking requirement at their media centre. In general, school and department collections are likely to increase classroom use of videos. Off-air taping by individual teachers appears to be growing.
- **Delivery of videos to teachers.** Couriers deliver programs to teachers (in all but the smallest board) and teachers are generally satisfied with their operation.
- **Community-oriented video production by boards.** Many of the larger boards (Satellite City, Riverside) and mid-sized boards (Cliffside, Centretown) produce some programs about their own communities. However, in the smallest boards (Countryside, Edgewater) resources for such production are not available.

Findings - Use of TV and Video in the Schools

- **Growing use of TV and video.** According to the media coordinators and principals, the use of television and video in Ontario schools seems to be growing, especially in secondary schools. Such increases are likely a result of the growing supply of curriculum-related programs, increasing availability of equipment and videos, declining film purchases and growing acceptance of video in homes as well as in schools. With the introduction of convenient, high-quality, inexpensive 1/2" video technology in the 1980s, video use has proliferated: VCRs are now found in virtually every school and in approximately 70 percent of Ontario students' homes [5].
- **Availability of equipment.** TV sets and VCRs are available in all of the schools in the nine boards approached. In most boards, advance booking is generally expected. Two boards report a shortage of VCRs. On one hand, the amount of equipment available seems to depend on teacher demand. Several principals say that they will be getting more equipment to keep up with the growing demand. On the other hand, several people feel that more equipment would lead to greater use and that more equipment would definitely be needed if teacher training increased or if school and department video libraries grew. One media coordinator suggests that locating equipment in each classroom would increase its use. There was no evidence that VCRs now available in schools are not being used.
- **Encouragement to use.** Of course, the use of video varies from school to school, but generalizations can be made. In elementary schools, the amount of use seems to depend in part on encouragement from principals and librarians or resource teachers. In many of the elementary schools, the presence of a full-time librarian or resource centre manager means that video materials (usually TVO's) are more likely to be drawn to the attention of appropriate teachers. In secondary schools in three of the largest boards, the presence of an AV technician in the school and the availability of tapes in department or school libraries are thought to have increased the amount used.

It is worth noting that the proportion of teachers who feel that they are being encouraged to use video is consistently lower than the proportion who report being encouraged to use computers.

- **Off-air use of television.** Although all media coordinators indicate that real-time off-air use of television is minimal, there is still a noticeable minority of elementary teachers in this study who do use off-air programs, particularly when no VCRs are available. While a majority of teachers use videotape only, a small proportion use off-air television only and a larger minority of teachers use both. Some teachers tape programs off-air for subsequent use.
- **Teacher training.** In several boards television and video are now seen as technologies that "everybody knows" and so technical training is not considered as a high priority. In secondary schools the AV technicians help teachers use video resources. Only a minimum number of teacher-training workshops in using video is now provided by some boards' consultants. Training is rarely integrated with curriculum workshops. (For discussion of TVO's role in training, see the fourth section of this report).
- **Sources of video material.** TVOntario is by far the largest provider of educational video materials to Ontario schools. With the growing teacher demand for more programs, all but the smallest boards report that their purchase of videos from suppliers other than TVO is increasing. It seems that most of the TVOntario inventory has already been purchased, so the media coordinators must turn to other sources. One board is part of the Media East consortium, a buying group formed to lower costs through joint purchases. Two media coordinators suggest that TVOntario organize consortium purchasing, thus allowing boards access to a greater variety of otherwise unaffordable programming. One board requested that TVO purchase educational non-broadcast rights for and then distribute programs produced by other television broadcasters such as CTV and Global.

- **Value of video.** Video technology is seen as an integral component of the classroom and valued in particular as a source of visual material offering concepts, ideas and vicarious experiences. Television and video are seen to bring the outside world into the classroom, help to present social issues and sensitive subjects (especially those not available through text books) and stimulate discussion. Of course, video is seen as a teacher's tool, not replacement. Like any tool, video's impact depends on how it is used.

Discussion

Encouragement to use, availability of equipment, access to program and training all work together to influence the use of television and video in schools. As noted above, the school boards have established various systems for providing these resources, the most recent of which are the school/department libraries, which are on the increase.

Some boards feel that video has been fully accepted and now leave it in the hands of the individual teacher, either with or without assistance from a school librarian, department head or AV technician. This was particularly true where attention has turned to increasing the use of computers. In other boards, people feel that the use of video could be extended and improved if there were more teacher training and support as well as more equipment. These boards look to TVOntario to offer workshops and they themselves occasionally hire board consultants to work with teachers.

A sizable majority of teachers from the boards examined are now occasional users and a minority are frequent users of these technologies. Generally speaking, television and video are seen as valuable tools for teaching and learning. In addition to citing other benefits, respondents say that television and video encourage group work as well as independent study and provide an alternate teaching method.

MICROCOMPUTER USE

Background

Since the mid-1980s, the Ministry has placed a high priority on introducing computer use across the curriculum. The introduction of computer technology and the development of educational software has been conducted through a specially-created unit in the Ministry itself, until recently called the Computers in Education Centre. This has recently been incorporated into a new Centre for Curriculum Resources and Technologies (CCRT). The CCRT's responsibilities include computer technologies and systems such as the Ontario Assessment Instrument Pool (OAIP), the Student Guidance Information System (SGIS) and the Ontario Education and Resources Information System (ONTERIS), as well as textbooks.

This research considers the current status of microcomputer use and its value as a teaching tool.

Findings

- **Use in elementary and secondary schools.** In all nine boards, use of the computer is a high priority and teachers are being strongly encouraged by principals, department heads and colleagues to learn about computers and to use them. In all boards, more elementary than secondary teachers are using computers. All kinds of software are being used in elementary schools: simulations, games, graphics, word processing and other language activities. Budget limitations and poor software quality are obstacles to wider use. In secondary schools, computer use is concentrated in business classes and computer studies, with some use in math, science and language classes. There is little software available for secondary teachers in other subjects. Use of computers as word processors is extensive in some schools.

- **Systems preferred.** In purchasing equipment, most smaller boards have acquired Icons, which are subsidized by the Ministry. Some of the other boards have chosen Apple computers only or a variety of brands including Icons. In elementary schools most computers are in classrooms; in secondary schools, they are usually grouped in labs.
- **Teacher training.** Most boards have full-time computer coordinators who spend much of their time training teachers and encouraging them to use computers. A substantial proportion of teachers, especially in elementary schools, have attended computer workshops. Many secondary schools have computer experts on staff who provide in-school training for the teachers.
- **Use compared to video.** Among elementary teachers, the proportion who are using computers is greater than the proportion using video, while among secondary teachers this pattern is reversed. At both levels (but especially among elementary teachers), significantly more teachers have attended computer workshops than video workshops, reflecting the high priority currently being given to computer technology.
- **Value of computers.** Like video, computer technology is seen as a valuable tool for teaching and learning, an integral component of the classroom. Computers are seen as part of the work world, as a source of individual interactive learning and as a tool that makes writing easier. In addition, they are considered to provide opportunities for self-paced practice (which is especially important for special education students), to reinforce school subjects and to support lessons. It is considered that the value of both video and computers depends upon how well they are used by the teacher in question – that they supplement teacher-student interaction rather than replace it.

Discussion

In several boards, attention to television and video has been reduced while great efforts have been made to introduce computers in the schools. Current thinking about educational technology is centred almost exclusively on computer technology. The recent creation of the Ministry's Centre for Curriculum Resources and Technology reinforces this mindset. Because TVOntario has historically had responsibility for television and video production and distribution, as well as for teacher training in the use of television and video programs, the Ministry has not included television and video under the CCRT umbrella. This understandable separation may inadvertently make it difficult for Ministry, board and school staff to integrate video resources into the implementation of new curriculum – a strategy identified in this research as potentially valuable.

RELATIONSHIP WITH TVONTARIO

Background

In its 20 year history, TVOntario has worked with teachers, board officials and education specialists to produce curriculum-based television programs and to support the growth of television-based learning in Ontario schools. TVO production teams collaborate with educators in designing programs. They conduct formative and summative evaluation to improve program quality. Programming is supplemented by a wide range of print support materials to facilitate video use in the classrooms and to promote awareness of the range of resources available from TVO. TVO-conducted workshops make the experience of teaching with television come alive. In the early years, these workshops offered practical, often technical, advice on the use of video equipment and tapes; later workshops screened new programming, suggested ways of using it effectively and trained teachers and board consultants to develop and lead their own workshops. TVO also served the school system by distributing videotapes at cost through VIPS and by supporting equipment acquisitions through the lease/buy program. TVO makes efforts to reach teachers directly by training and distributing information to the province-wide network of TRTs (Television Resource Teachers) and by providing copies of the *School Broadcasts* and *Horaire Scolaire* broadcasting schedules for every teacher. A recent initiative by TVO's Educational Services links the use of video with new curriculum through the involvement of a consultant at three boards, one of which (Rocky) is examined in a case study.

This being said, it is important to recognize that TVOntario is essentially an educational broadcaster that must devote its major resources to producing, acquiring and broadcasting programs. Only a relatively small part of the staff is occupied in teaching about and encouraging the use of TVO programs in schools.

Findings

The findings listed below present programming suggestions, concerns about support materials and their distribution, training needs and copyright concerns.

- **Overall responses.** TVOntario is highly regarded for its programs and for its services. An overall feeling of appreciation predominates in most boards. In particular, the recent increase in curriculum-linked programs was applauded.
- **Suggestions for new programming.** Boards are looking for more programs closely tied to curriculum topics, more current programs and more programs presenting a Canadian perspective, particularly Canadian visual novels. In some schools, teachers are at a loss for a video component for their lessons because students have already seen the available programs. The growing visual sophistication of today's students is seen to increase the value of programs that demonstrate high quality production.
- **Request for northern input into programming.** Respondents in the northern boards were most vocal in asking for greater involvement in program development. They feel that TVOntario programs tend to be designed by and for people in large urban centres.
- **Preferred programming subjects.** In elementary schools, language arts and science programs are most often used. In secondary schools, science, geography and history programs are used the most.

- **Primary sources of information about video resources.** Board media centre catalogues are the main source of information for teachers about the programs available to them. TVOntario publications and flyers serve a supplementary purpose, often to highlight new programs. This may indicate that TVO publications should contain subject-specific or narrowly-focussed information about individual programs.
- **Distribution of TVO support materials.** Often TVOntario publications (e.g. *TRT News*, correlation charts, subject catalogues) are kept at the media centre unless requested by a teacher; therefore, instructions for wider distribution should be issued by TVO to media centre staff. One reason for non-distribution may be, as some media coordinators state, that they do not receive enough copies for everyone. Within this same vein, requests were made that more than one contact person at a media centre be sent TVO material, to ensure the widest possible distribution within the appropriate group. Distribution snags were also reported in some areas that rely on teachers (TRTs) to voluntarily hand out TVO materials. In some boards, this system has become dormant as teachers and librarians are re-assigned or move from school to school.
- **Requests for additional TVO workshops.** Respondents are most aware of province-wide workshops on using television to teach about AIDS – workshops specially funded by the province and conducted by TVO. In general, media coordinators and school staff are asking for more workshops, particularly those directly relating curriculum to available programming.

- **Mixed views on the need for more video training.** Although a decline in the number of TVO-funded workshops about video teaching techniques or new programs was noted, additional training is not seen as a need by some respondents. This latter group feels that video has already been incorporated successfully into their teaching. Others, particularly those in the small northern boards, feel that the decline in training is a significant loss and that more training is needed to improve the extent and quality of video use.
- **Concern about copyright expiry information.** Delays in notification of copyright renewals and the need to keep track of copyright expiry (which are not encountered from producers other than TVO) were problems for most media coordinators. They are understandably frustrated when they receive copyright renewal notices for programs they have erased, having previously been told that the rights for the programs had expired and would not be renewed.
- **Concern about copyright infringement.** Coordinators, principals and teachers are concerned with the legal implications of off-air recording of programs from TVO and other services, as well as of the use of videos in the classroom. The lengthy deliberations over recent and upcoming federal copyright legislation have left the current legal situation unclear. Schools would appreciate more guidance on this issue from TVOntario.

Discussion

Suggestions and concerns notwithstanding, TVOntario is highly regarded in the school system. The media coordinators are familiar with TVO's programming and services. Some boards look to TVOntario for programs as well as information and workshops on how to use them, whereas others are content with the programs alone. In general, smaller boards with fewer resources rely more heavily on TVOntario services. Two possible foci for TVO activity stand out from these suggestions: coordinated, cooperative work with boards and the Ministry to integrate programming into new curriculum initiatives and teacher training, and grade-focussed, subject-specific promotion of TVO programming to board employees and media coordinators and, perhaps, to specially selected teachers.

RECOMMENDATIONS

Recommendation 1. To counterbalance the recent emphasis on introducing computers in the schools, that TVOntario implement a plan to re-awaken the Ministry of Education and the boards to video's benefits, availability and ease of use.

Recommendation 2. That TVOntario work to integrate further awareness and use of educational video into Ministry policies and curriculum guidelines, board curriculum development processes and board and Ministry teacher training.

The growing in-service programs for teachers in the boards are reaching more and more teachers. TVOntario could incorporate its training efforts into this existing structure rather than establish independent training programs. The provision of information through the school system's channels of communication should be considered as well. The possible placement of Educational Services staff in Ministry regional offices should be studied.

Four strategies follow from this approach:

- a. Discussions with Ministry staff to demonstrate the benefits and importance of including TVOntario programs and services in the curriculum guidelines they develop. Ideally, all curriculum documents should incorporate related video programs.
- b. Negotiations with staff at the Ministry and faculties of education to stimulate collaborative projects that increase student teacher training in the use of television and video.
- c. Assistance to school boards in planning curriculum documents and professional development activities. This study confirms that board superintendents, elementary principals, librarians, secondary department heads, AV staff and board subject or media consultants are the people best able to encourage the use of video resources and so the people through whom TVOntario can make the most impact with teachers. To reach

smaller boards, TVOntario could establish consulting services on a regional or inter-board basis.

- d. Careful targeting of TVOntario print support materials to maximize use by teachers and boards. Each TVOntario publication should be written for a particular grade, identified by subject and selectively distributed to some of the people who direct and support the teachers' activities: curriculum superintendents, elementary principals and librarians, secondary department heads and board curriculum, subject and media consultants. Additional work might be done with boards on their own media catalogues, identifying by grade and subject headings any TVOntario programs to be included.

Recommendation 3. That TVOntario develop a system to monitor and get feedback from workshops and presentations conducted on its behalf by board media coordinators, consultants and workshop specialists, especially in northern and smaller boards.

Recommendation 4. That TVOntario produce even more programming that supports new curriculum and teaching methods as closely as possible, for release at the same time as curriculum guidelines. Attention should be paid to providing a Canadian perspective; to incorporating changing teaching methods (such as small group and independent learning) into program design; and to ensuring that production quality is appealing to the increasingly sophisticated viewers. The case studies demonstrate that the demand is greatest for programming to support teaching in French immersion, language arts, art and skills development, especially in technical education.

Educators would like to be more closely involved in program development. This was especially true in the northern boards, where teachers would appreciate materials that are designed with use in their geographical location in mind.

Recommendation 5. That TVOntario develop and institute the following procedures to enhance or expand support services:

- provide more advance notice of copyright renewals and expirations, without subsequent revisions;
- publish and distribute print support and promotional material at the same time as the program is released;
- possibly coordinate school boards' purchases of video programs from other (i.e. non-TVO) suppliers;
- reschedule broadcast of school programs in light of decreasing off-air classroom use to increase taping block schedules, thus assisting school boards in augmenting their video inventory;
- provide precise information and directions about copyright regulations;
- provide the opportunity to order videotapes by telephone and by computer.

CASE STUDIES

Introduction

This research report and its recommendations are based on information gathered in nine school boards that kindly agreed to participate in the case studies presented here. The analysis of these case studies points to ways of improving TVOntario programs and services to make them even more useful teaching tools. TVOntario is very grateful for the boards' willingness to provide information, relate their experiences and offer suggestions.

Each case study incorporates information from several sources: interviews with board officials and principals, questionnaires distributed to all teachers at several schools and a focus group discussion with teachers in one school. The case studies give a brief description of the boards' locations and of the communities in which they are situated, followed by an overview of each board's situation concerning:

- areas of change,
- the change process and how it operates,
- television and video use (and factors affecting these)
- microcomputer use (and factors affecting this)
- value of video and computers as teaching tools
- relationship with TVOntario.

The numbers and percentages reported in the case studies cannot be used to generalize about the board as a whole or about all schools in Ontario.

Although the case studies address common topics, their content varies considerably, reflecting such factors as differences in individual circumstances and in degree of familiarity with TVO. The boards that participated in this study were told that their identities would be disguised to encourage free commentary. Each board was asked to review its case study before publication.

The case studies are arranged by geographical region as shown on the following chart.

Case Studies

Boards' Names	Location	Size
<i>Board</i>	<i>Region</i>	<i>Number of Schools</i>
Waterville	Northern	49
Countryside	Northern	6
Edgewater	Northern	12
Cliffside	Northern	26
Pleasantville	Western	13
Rocky	Central	24
Satellite City	Central	158
Centretown	Central	50
Riverside	Eastern	41

WATERVILLE BOARD OF EDUCATION

The Waterville Board of Education is in an urban community in an otherwise predominantly rural area of northern Ontario which has its economic base in the transportation and lumber industries. The board includes 40 elementary schools with 10,600 students and nine secondary schools with 7,800 students. The board's film and video needs are served by a large instructional materials centre.

Interviews were held with the director, a superintendent of education concerned with curriculum, the manager of the instructional materials centre, and principals of three elementary and two secondary schools. Questionnaires were distributed to the teachers in these five schools and completed by 26 of 45 elementary and 65 of 109 secondary teachers. Twenty teachers attended the focus group.

AREAS OF CHANGE

In the past five years, Waterville has undergone change in the major areas of board structure and curriculum. As a result of the introduction of separate school funding, the board has reorganized its secondary schools: one has been closed, another closing is under consideration, a third high school has increased in size and changed in structure. Still another high school has moved into French immersion.

While organizational changes have been made to facilitate the implementation of new curriculum, the board has focussed on two major areas of curriculum change for all schools to address: at the elementary level, emphasis is now being placed on encouraging the development of students' independent thinking skills rather than on teaching particular subject matter; at the secondary level, the board is implementing the requirements of Ontario Schools: Intermediate and Senior policies, again with a special emphasis on developing students' problem-solving skills. In the past year, curriculum implementation emphasis was given to AIDS education, computers across the curriculum and environmental studies.

CHANGE PROCESS

In Waterville, extensive collaborative work was done to develop the best possible curriculum implementation plan. At the elementary level, the principal takes a leading role in implementing, evaluating and reviewing the change process; he or she is also responsible for providing teachers with the training and information they need and for reviewing plans and progress with them. At the secondary level, department heads form committees which make the key decisions and are responsible for conveying information to and from teachers.

TELEVISION AND VIDEO USE

The instructional media centre has an extensive film library (which is funded by and serves both the public and the separate school boards) and a growing video library (which receives funding from and is for the exclusive use of the public board). Although Waterville still uses twice as much film as video, the use of video is increasing, with inventory being consolidated in the VHS format. The video library now consists of 90 percent TVOntario material but the proportion of tapes from non-TVO sources is expected to grow as teachers request new material.

Eighteen of 26 elementary teachers responding to the study describe themselves as current users of television or video, most often in language arts, science, social studies, geography and values discussion. (Five elementary teachers have used tv or video in the past but do so no longer and three teachers have never used these teaching tools.) At the secondary level, 41 of 65 teachers are current users, with preferred subjects being geography, science, english, history and business. (Twelve secondary teachers have stopped using tv or video; 12 have never been users.)

Eight elementary and thirteen secondary teachers say they use both video and broadcast television while none surveyed use only broadcast television. Because of the small and seemingly decreasing amount of off-air use, the suggestion was made that TVO change its scheduling of schools broadcasts to early morning off-peak hours, encouraging the schools to tape using pre-set timing devices. Video use is expected to increase with the purchase of new equipment and the shift in resource

allocation away from film. Factors that inhibit video use are reported to be shortage of equipment, unreliability of frequently-used equipment and the reported need to book it in advance.

There is no perceived need to encourage the Waterville teachers to use video or television since these are considered familiar technologies and virtually no training is done. Seven of the 26 elementary teachers and 16 of the 65 secondary teachers have attended workshops on television or video use in the past. The instructional materials centre is concerned with integrating av materials into new curriculum. The centre also keeps teachers informed of resources available through a well-used annually-produced catalogue and regularly-issued supplementary materials.

MICROCOMPUTER USE

There are about 1,000 computers in the Waterville schools. The elementary schools use Commodore 64s and 128s to support curriculum and assist enrichment programs. Nineteen elementary teachers describe themselves as current users of computers in teaching (six teachers have used this technology in the past but do so no longer; one has never used it). Twenty-one of these teachers have attended workshops on using computers in their teaching.

The situation in the secondary schools is quite different. Only 19 teachers at this level report current use of computers, perhaps because there tends to be more lab set-up (11 teachers are past users and 35 teachers have never used computers). Twenty-three secondary teachers have attended workshops on using computers. The secondary schools use labs of ICONs, IBMs, some Macintoshes and Amigas for graphic arts and drafting and some Radio Shacks and Apples. Although the media centre distributes OESS software and software purchased from other sources, the board is looking for additional computer applications and software.

Teachers' fear of using technology is described as one of the board's problems. Accordingly, computer consultants and workshop training have been made available to encourage use.

VALUE OF VIDEO AND COMPUTERS IN THE CLASSROOM

All participants agree that the technologies of television, video and computer have great value for teaching and learning. Video is seen to be particularly good in demonstrating and in conveying and making real an unknown reality, for example, in teaching a foreign language or presenting a science experiment. Computers are considered valuable tools for enhancing decision-making, problem-solving and analysis. While word processing in particular is described as helpful for students with difficulty in spelling, there is agreement that computers should not replace the pen and pencil and that the student and teacher interaction is still the most important part of schooling.

RELATIONSHIP WITH TVO

TVOntario is held in high esteem by the Waterville board and is described by one respondent as one of the best things going for educational media in Canada. Of course, there are some suggestions for improvement in the areas of programming, support materials and copyright clearance information. Specifically, teachers are asking for more science, math and arts programs, for more French-language tapes and, in general, for more programming that closely follows the curriculum. The request is made that support material be distributed at the same time as the tapes of a series and that copyright renewal information be conveyed soon enough to avoid unnecessary erasure of tapes.

Just as the teachers request more face-to-face contact with the people from their own media centre, they also want more contact with TVOntario, perhaps in the form of school-based workshops or regional subject-specific (e.g. science programming) events. One teacher had participated in a TVO workshops specialist course and occasionally he offers workshops for elementary teachers. The board has also introduced "cinplex videoplexes" to allow teachers to preview new acquisitions, largely TVOntario programs.

A suggestion is made that TVOntario act as an intermediary between schools and commercial video-production houses or broadcasters, providing schools with the opportunity to use more commercially-produced videos.

The TRT system introduced in the past has been superseded by the board's system for distributing media information to teachers through school librarians.

COUNTRYSIDE BOARD OF EDUCATION

The Countryside Board is located in a small northern rural town whose population is half Francophone and half Anglophone. The region has been and is still facing change: the town's primary industry was mining and is now, somewhat precariously, pulp and paper production.

The Board consists of four elementary English schools and two secondary schools – one French and one English, both housed in the same building – educating a total of 1100 students. The secondary schools share an AV centre; elementary schools have no media centres but rely upon their principals to serve their video, film and computer needs. The English-language secondary school has a close relationship with a nearby university and larger school board, which occasionally provide assistance to and share resources with the Countryside school and staff.

Interviews were conducted with the newly appointed director of education, the former principal of the secondary school, principals of two elementary schools and the AV technician at the secondary audio-visual centre. Questionnaires were distributed to the teachers in these three schools and completed by 16 of 23 elementary and 22 of 34 secondary teachers. Six teachers attended the focus group discussion.

AREAS OF CHANGE

The possible separation of the French from the English-language secondary school is a major change in the works; one recently accomplished is the implementation of the Ministry's 1984 policies for secondary schools (Ontario Schools: Intermediate and Senior). Another major innovation was the creation in January 1989 of the position of director of education. Previously principals were relatively autonomous, operating under the guidance of Ministry officials, who would visit periodically. To coordinate change at Countryside, the director plans to develop the board's process of curriculum implementation within the CRDI model.

Curriculum changes are pending at the elementary level, particularly in the language, science and math areas, and at the secondary level, with implementation of new job skills programs expected in forestry and tourism. Also anticipated are new courses in native studies and a variety of life skills such as personal finance, family living, drug and alcohol abuse prevention, as well as a special initiative to prepare young women for non-traditional careers.

CHANGE PROCESS

Many respondents commented that the change process at this board is complicated by the fact that everyone is extremely busy in at least one role: teachers and principals often assume multiple responsibilities either within a particular school (multiple grade teaching, for example) or between schools and other institutions (one person acts as principal for two elementary schools and is also mayor of the community). As a result, the board cannot always act on opportunities for change, such as participating in the Ministry's northern school improvement plan. However, change is facilitated by the allocation of resources for teachers' professional development.

TELEVISION AND VIDEO USE

The audio visual centre houses English and French-language resources for the secondary schools: videotapes and video equipment in a variety of formats, films, filmstrips, slides, projectors, etc. Half of the centre's video programs are taped off-air, the rest purchased; 90 percent of the video inventory comes from TVO. The most popular TVO programs are *Parlez-Moi* and those on computer and science subjects.

Thirteen of the 22 secondary teachers responding to the survey have used television or videotapes in their classroom teaching in the current year and almost all report that equipment is available either at short notice or with advance booking. (Seven secondary teachers used tv or video in the past but are no longer doing so and two have never used these technologies). Since the board does not produce an AV catalogue, most teachers consult the technician or refer to circulated TVO material for information on what is available. While the AV technician provides training on a one-to-one basis, workshops on

using television in the classroom have been conducted at the media centre of the nearby larger board of education. Six secondary teachers from Countryside had attended at least one of these workshops.

At the elementary level, as noted, much of the responsibility to encourage and train for video use seems to be felt by the principals. At this level, videos are scarce and, in general, not much money seems to have been allocated for their purchase. The exception is a \$5,000 grant from the Ministry of Northern Development and Mines to each elementary school for the updating of science programs. This money will provide, among other things, for the purchase of new VCR technology.

Four elementary teachers of the 16 responding have used television or video in their classroom in the current year (six have stopped using video technology and six have never done so); two of these teachers use broadcast television only. Three elementary teachers report having attended a television workshop.

MICROCOMPUTER USE

There seems to be more support at Countryside's elementary level for microcomputer than for video use: nine of the 16 responding teachers report using computers in their teaching in the current school year, and a little over half have attended a workshop on integrating computers into teaching. (Three teachers used computer technology in the past but are no longer doing so and four teachers have never done so.) Both of Countryside's elementary schools have opted to have computers in each classroom (one for every 10 students in one school; one per 21 students in the other), which can make ensuring access for everyone difficult. The OESS software is the most popular at this level.

At the secondary level, fewer teachers use computers than video: seven of 22 respondents have used computers in their classes in the current school year (four used them in the previous year and 11 have never used them). Computers are used for word processing and networking as well as in school administration. While seven teachers report having attended a workshop on integrating computers into teaching, the former principal of the secondary school suggests that

extensive staff training has resulted in Countryside's having what is probably the most computer literate staff in northern Ontario.

VALUE OF VIDEO AND COMPUTERS IN THE CLASSROOM

All the participants in this study emphasize the importance of using video and computers in the classroom, despite the fact that reported use of either technology is not high. Lack of lesson preparation time was frequently described as an impediment to video use. Even so, video is appreciated for its ability to help students visualize concepts and to provide a wealth of information not commonly available through textbooks and verbalization. Teachers in the focus group say that the value of video is in teaching science, environmental studies and English. Computers are valued, particularly at the elementary level, for acting as a tutor and for helping to reinforce learning through games.

RELATIONSHIP WITH TVONTARIO

Respondents were pleased with the recent TRT workshop and follow-up at Countryside and knew about but had not participated in the 1988 AIDS workshops in the area. The need for this kind of personal, face-to-face contact was strongly felt, particularly, perhaps, because of the absence of a media centre to meet the elementary schools' needs. Indeed, some of the Countryside respondents felt remote from TVO.

This board requests more programs in specific areas: programs that show different aspects of Canadian culture, that support technical education, that are closely tied to the curriculum and generally programs in the French language. Additionally, those ordering tapes (the AV technician and elementary teachers) would like to be able to do so by phone rather than through the mail.

At Countryside, the AV technician performs the role associated with the TRT.

EDGEWATER ROMAN CATHOLIC SEPARATE SCHOOL BOARD OF EDUCATION

Edgewater Board is located in the midnorthern mining region of Ontario - an area now experiencing economic decline and a steady drop in student enrollment as families move away. The board consists of five elementary French schools, six elementary English schools, and one school for trainable retarded students, with a total enrollment of just over 3000 students. A media centre run by an audio-visual consultant serves the schools' video, film and computer needs.

Interviews were conducted with the director (who acts for both English and French-language schools), the academic administrative assistant, the audio-visual consultant and two principals of English-language schools. Questionnaires were completed by 31 of 37 teachers in these two schools. Eighteen teachers attended the focus group session.

AREAS OF CHANGE

Generally, the major shift at this board in the past five years has been towards integration - narrowing the divide between subjects, enhancing teacher-student relationships, altering the physical arrangements of classrooms and increasing the interaction between schools and the board. The following specific changes are reported: the institution of whole language across the curriculum, promoting activity-based, child-centred learning; the pilot-testing of French immersion programs in all English schools, designed to make northern students more employable; the adoption of computers, set up in individual classrooms as opposed to labs; and the ongoing implementation of the Ministry's science, geography and history curriculum guidelines.

CHANGE PROCESS

The Edgewater Board follows an extensively revised version of the Ministry's CRDI model for implementing change. The approach here involves the assignment of selected curriculum documents to particular principals and teachers for study, testing and then presentation to the rest of the board's schools.

Integral to the board's CRDI framework is an emphasis on training – particularly of teachers, who are considered the main link with the students. While funds have been available for out-of-town training and for regularly-held workshops (often attended by parents), the shrinking budget is leading to a change in the board's approach to professional development: interested teachers are volunteering to seek out information and present workshops for their colleagues. The director suggests that teachers need to be informed about integrating teaching and learning (for example, how to teach English in science class); incorporating the computer and the VCR into language arts; and teaching about AIDS in a Catholic school board.

Evaluation of changes in curriculum has yet to be formally instituted.

TELEVISION AND VIDEO USE

The media centre houses various formats of video tapes and equipment. About 60 percent of the video inventory is taped off-air, the rest is purchased. Ninety-five percent of all video material is obtained from TVO, although this proportion is expected to decrease. Twenty-four of the 31 teachers responding report using television or video during the current year, five used video in the past year and two have never used tv or video. Twenty-four indicate using video only, the other five use both tv and video technologies.

All respondents and interviewees at this board expect the use of television and video to increase to meet growing teacher demand; however, expectations for more tapes and equipment may not be met, since the board's budget for these purchases is decreasing with declining enrollment. Even now, equipment is in enough demand that more than half of the teachers who use video in the classroom report that equipment must be booked in advance. Access to specific

programs, on the other hand, does not seem to pose problems. Teachers are kept abreast of what's available through the highly valued AV catalogue produced by the media centre; few rely on TVO print support materials.

The AV centre is also very involved in training teachers; the media consultant conducts regular in-school sessions on integrating video material into the curriculum and at times demonstrates video use with children in the classroom.

MICROCOMPUTER USE

Twenty-five out of the 31 teachers responding report that they are using microcomputers in the current school year (two have stopped using them and four have never used them). The models most popular at the schools chosen as interview sites are ICONs and the Commodore series, with roughly one computer to every 20 students. The software most commonly used is put out by OESS, with word processing and whole-language-related activities favored.

Twenty-one teachers report they have received formal training on the integration of computers in teaching; training is done regularly by the media consultant and out-of-town experts in workshops, open houses, and classroom visits.

VALUE OF VIDEO AND COMPUTERS IN THE CLASSROOM

Both video and computers are considered highly valuable technologies in the classroom. The value of video is seen largely in its ability to render visualization to concepts, accelerating movement through the curriculum and promoting discussion. Teachers did comment that they think it difficult for educational videos to compete with the high-tech special effects of the horror films that children are watching on VCRs at home.

Although more teachers are using video than are using computers, this latter technology is judged the more useful teaching tool, perhaps in part because of its adaptability to use by the learning disabled. Computers are valued for their ability to animate concepts (like

chemical reactions, eliminating some need for lab experimentation), to provide drill and practice and to prepare students for the world of work.

The growing demand for education information in the north, coupled with the decline in student enrollment, lead to the realization that maximum educational benefits must be obtained from every dollar spent. In this light, computers and video are regarded as particularly promising media.

RELATIONSHIP WITH TVONTARIO

All participants from Edgewater describe their contact with TVOntario in a positive light; it is recognized that TVO's support (through programming, materials and workshops) for the use of video in the classroom has encouraged school boards to develop their own expertise in effectively using this technology. A request was made for more programming specifically related to life in the north, for increased Canadian content (especially in visual novel series, where non-Canadian accents can be problematic to comprehension) and for more French-language programming. TVO support materials are received by the media centre and evaluated very highly; the suggestion was made that they automatically be distributed with tape orders.

Workshops conducted by TVO on the effective use of tv and video in the classroom were remembered very favorably and described as having an on-going impact on teaching; requests were made for more post-workshop follow-up activities and for more subject-specific workshops. Suggestions were made for the streamlining of tape ordering procedures and for the clarification of copyright renewal information so that unnecessary tape erasure is eliminated. TVO's TRT system is not active at this board.

There is some concern that TVOntario offer more readily available support to those with questions about or difficulties with the OESS software. Suggestions were also made for additional toll-free telephone access to TVO and for computer programs for the legally blind and trainable retarded.

CLIFFSIDE BOARD OF EDUCATION

The Cliffside Board is situated in rural northeastern Ontario where tourism is the main industry. The board consists of 20 elementary schools with 5250 students and six secondary schools with 3600 students. The needs of the schools are served by two media centres, one (the Educational Media Centre) that provides film and videos and the other (the Learning Material Centre) that provides all other types of teaching aids (e.g. kits, slides, etc.).

Interviews were held with the director, a superintendent of education, the media centre supervisor, and principals of two elementary schools and one secondary school. Questionnaires were distributed to all teachers in these three schools, and completed by 23 of 32 elementary and 35 of 55 secondary teachers. Eleven teachers attended the focus group.

AREAS OF CHANGE

Demographic change in the region is prompting many changes in the board: an increased number of French immersion schools; the opening of one French elementary school; and an expansion of programs for remedial and gifted students. Cliffside is also experiencing a move to increased community involvement: a pilot project has elementary students performing with local seniors in a musical group; and local industries are participating in a co-op education project for secondary students who plan to move immediately into the workforce. The board is initiating a new approach to professional development and is planning for the large turnover in staff now underway.

CHANGE PROCESS

The Cliffside Board is implementing the Ministry's CRDI model in developing new curriculum in math, geography, and history for grades eight to ten. At all levels, teachers are actively involved in the development and evaluation of curriculum; even so, some principals are concerned that the CRDI process allows for limited board input.

TELEVISION AND VIDEO USE

The Educational Media Centre has a large video collection, 95 percent of which is purchased, the rest dubbed off air. Forty percent of the tapes are from TVO with the remaining 60 percent from NFB, National Geographic and Claude Primeau Productions. The proportion of TVO material may decrease as schools buy more programming, since they have already purchased the bulk of the TVOntario inventory. The most popular subjects for video support at the elementary level are French, environmental studies and math; at the secondary level, video is used most often in English, history and science classes.

All schools report an increase in use of video in the classroom. At the elementary level, 14 of the 23 teachers responding reported using broadcast television or video this year (eight used these technologies in previous years but not this year and one has never used them). At the secondary level, 27 of 35 teachers reported using video this year (four used it in previous years, and four have never used it). At both levels, the majority of teachers use video only, but over a third use both broadcast television and video. Broadcast television only is used by only one respondent, an elementary teacher.

Most teachers at both levels indicate that they have to book equipment in advance and that video would be more used if more VCRs were available. Most encouragement to use tv and video is reported to come from fellow teachers. In-school training is rarely provided, although the media centre offers technical and subject-specific workshops to teachers, principals and community members.

The centre produces its own film and video catalogue which is a primary source of information for both elementary and secondary teachers. Two main problems emerged from the interviews: the separation between the Media Centre and the Learning Material Centre results in a lack of awareness of the range and variety of resources available; and access to popular videos can be difficult.

MICROCOMPUTER USE

Cliffside's elementary schools are heavily involved in computer use, with 20 of 23 responding elementary teachers saying they are using computers during the present school year. (one teacher at this level has used computers in the past but is no longer doing so; two have never used them). One elementary school is involved in an experimental, government-funded Lighthouse Project designed to provide and study the use of extra computer resources, including hardware, classroom applications and an encouraging environment.

By contrast, only seven of 35 respondents in secondary schools are using computers (three have stopped using them and 25 secondary teachers never used them).

The board uses mainly Icon computers. Commodores are used by some elementary schools, where classes have access to equipment for two-week periods; two IBMs are part of the Lighthouse Project. Some secondary schools are using Apples, and one IBM lab is used in business and accounting. In both elementary and secondary schools, computers are available in labs and in classrooms. At Cliffside, the ratio of students to computers is 30 to one.

The Cliffside staff is being trained in computer use both by university courses and by classes and workshops offered through the board.

VALUE OF VIDEO AND COMPUTERS IN THE CLASSROOM

The use of all these technologies is considered valuable and expected to increase, allowing more student participation in the learning process and enhanced individualized learning. Television and video are seen as important and useful for their abilities to make the abstract concrete, to present a wide variety of information and to attract students' attention. Computer use is seen as crucial for facilitating the acquisition of many skills (such as research and language skills) but also as a way to develop the ability to use and manipulate the computer itself. Computers are also described as important for preparing children to adapt to changes in society.

RELATIONSHIP WITH TVONTARIO

The board's relationship with TVO is described as excellent. There is an expressed desire for more contact with TVOntario and information about its programs and services, particularly in the form of workshops conducted by northerners (as was the case last year, for example, with an AIDS workshop led by a TVO-trained North Bay teacher). The three workshop that TVO conducted at the board last year (the subjects were AIDS, becoming a TRT and environmental studies) are all considered a success.

TVO programming is described as increasingly better and better and will be expected to meet growing needs in language, visual arts and French immersion teaching. Three concerns were voiced: that print support material has not always been released at the same time as the series it accompanies; that up-dated information about copyright renewals has not always reached the schools in time to avoid unnecessary erasure of tapes whose rights were thought to have expired; and that communications from TVO are uneven. For example, the board requested notification of any TVOntario activity in the Cliffside region, so that it might contribute to and benefit from what takes place.

TRTs at Riverside (particularly in the elementary schools) are a source of information about new TVO programs and print material.

PLEASANTVILLE ROMAN CATHOLIC SEPARATE SCHOOL BOARD

The Pleasantville Roman Catholic Separate School Board is located in a small rural town in western Ontario. Though primarily agriculturally based, this town also has a significant public service presence. The board spans two counties and consists of 11 elementary schools (one of which is designated as a "creative learning centre") with over 3200 students and two secondary schools with over 800 students. The board's media centre, run by a media technologist and a library technician, serves the video, film and computer needs of the Pleasantville schools.

Interviews were conducted with the director of education, the superintendent of education responsible for secondary curriculum, the media technologist and principals of three schools, one secondary and two elementary. Questionnaires distributed to all teachers in these three schools were completed by 16 of the 33 elementary and 25 of the 44 secondary teachers. Eighteen teachers attended the focus group discussion.

AREAS OF CHANGE

In recent years, Pleasantville has been focusing on designing and implementing teaching methods for small classes (approximately 20 students per class) and has been reducing class size to allow teachers to spend more time with individual students. In addition, computers have been implemented across the curriculum, extending whole-language writing and problem-solving inquiry.

At the elementary level, the Ministry curriculum documents in science, mathematics, geography and history have been adopted. At the secondary level, the new OAC system has changed program design and course content, collapsing into four years what had previously been covered in five.

Another development is education about drugs and AIDS. Extensive work with teachers, trustees and parents was needed to develop comfortable teaching practices in these sensitive topics. Other

mentioned areas of change were an increase in French immersion (the board now has three dual-track schools at the elementary level), the integration of special education students into regular classrooms and an increase in job placements for cooperative education programs.

CHANGE PROCESS

Pleasantville works under a five-step curriculum implementation model that was designed before the Ministry's CRDI document. At this board, subject-specific curriculum writing councils are made up of consultants and interested principals, vice-principals, department heads and teachers, with teacher ownership credited as the number one factor influencing design and implementation. Teacher training occurs through workshops, publications and presentations, with follow-up assistance recognized as necessary to effectively implement change. Evaluation of curriculum change has yet to be formally instituted.

TELEVISION AND VIDEO USE

The media centre houses a wide variety of mostly VHS video equipment and tapes. Seventy percent of video programs used at this board are from TVO, but this proportion is expected to decrease in coming years as the demand continues to outgrow TVOntario inventory. Ninety-five percent of TVO programs are purchased, the rest are taped off-air. The programs most frequently used at the elementary level are *Math Patrol*, *Tom Grattan's War*, *Brothers By Choice*, *All About You* and *Readalong*. At the secondary level, they are *Eureka*, *Career Planning*, *Bits and Bytes* and *Self Incorporated*.

Ten of 16 elementary and 20 of 25 secondary teachers report having used television or video in their classrooms in this current school year (five elementary and one secondary teacher no longer use these technologies; one elementary and two secondary teachers have never used them). Use of the off-air television signal is minimal and seems to be limited to special current affairs or news broadcasts. Despite this relatively high use of video, Pleasantville teachers report several impediments to use: lack of equipment; the need to book equipment in advance; small selection of videos; lack of preparation time to allow for effective integration of video into lessons; and lack of awareness of

video's proper instructional use. Only six elementary and four secondary teachers report having attended workshops on the use of television or video for teaching, perhaps because no training is offered through the media centre. Information on tapes available at the board is provided in the centre's AV catalogue, which is distributed to the schools along with TVO print material.

COMPUTER USE

Pleasantville board officials are enthusiastic about computers and stress the importance of them in teaching. The board originally used Commodore C64s at the elementary level, with a minimum of 15 computers in each school. Currently, two-thirds to three-fourths of the board's schools are equipped with IBMs. Eight elementary teachers have used computers in the current school year (three used computers in the past but no longer do so and five have never used this technology). At the secondary level, seven teachers have used computers in the classroom in the current year (three have in the past but do not do so presently and 15 have never used them).

Five elementary and four secondary teachers report having attended workshops on integrating computers into their teaching, including the six-week microcomputer courses held after hours up by the board.

VALUE OF VIDEO AND COMPUTERS IN THE CLASSROOM

At Pleasantville, video and television are valued because they enhance teaching. These technologies were considered to add visualization to concepts, increase information possibilities, stimulate student interests, foster discussions and bridge gaps between subjects.

Computers are considered effective instructional tools that individualize the learning experience by adjusting to each student's rate of absorbing material. They are seen to have the ability to clarify lesson concepts, improve writing skills, provide immediate evaluation and train users for the world of work.

RELATIONSHIP WITH TVO

TVOntario is highly regarded at Pleasantville. The participants speak favorably of their contact with TVO and would like even more interaction. While TVO's AIDS workshops and the programming in general are known, there is a request for subject-specific information, particularly in the form of workshops. Teachers ask for more up-to-date video material in all subjects, particularly in French immersion and French core classes, in technical studies and in English-language visual novels. Closer work is suggested between TVO and curriculum developers, with the additional recommendation that programs be released at the same time as curriculum documents. All schools have a TRT, usually the librarian.

ROCKY ROMAN CATHOLIC SEPARATE SCHOOL BOARD OF EDUCATION

The Rocky Roman Catholic Separate School Board is located in a south-central urban community whose economic base consists of automotive, manufacturing and service industries. The board comprises 22 elementary schools with almost 6000 students and two secondary schools with 2600 students. The board's media centre serves all its schools' video and computer needs and shares a film library with the local public school board.

Interviews were conducted with the director, a superintendent of education, the coordinator of instructional media and principals of one secondary and two elementary schools. Questionnaires distributed to all teachers in these three schools were completed by 26 of 33 elementary and 13 of 67 secondary teachers. A focus group was attended by 11 teachers.

AREAS OF CHANGE

Curriculum changes in various stages of implementation were reported in the following areas: primary science, in a project that incorporates TVO science programming into the board's curriculum; whole language teaching across the curriculum; development of a basic level program (secondary) and increased efforts to prepare students for the workplace; revision of secondary programs, especially in the arts, music and drama.

CHANGE PROCESS

This board uses the Ministry's CRDI model for implementing change, with a strong and growing reliance on extensive professional development in the form of inservice programs, orientation days, publications and staff seminars. Curriculum councils comprise teachers, department heads and administrators who facilitate the implementation of change.

TELEVISION AND VIDEO USE

The media centre which houses VHS equipment, video tapes and films, has extended hours to allow teachers to preview videos and provides repair service for equipment. Fifty percent of the centre's programs are taped off-air, 50 percent bought pre-recorded. Approximately 80 percent of the programs are from TVOntario, but this proportion is expected to decrease, as the centre holds a large percentage of TVO's inventory.

Fifteen of the 26 elementary teachers report that they have used tv or video this year (eight say they have used these communication technologies in the past, and three report never having used them). At the secondary level, 10 of 13 teachers currently use video or tv (three have used them in the past. Of 22 elementary users, four use tv only, five use video only, and 13 use both. Eight secondary teachers use video only and five use both video and television.

While video use is seen to be increasing and overtaking the use of film, there are several reported impediments to video's use, including limited access to equipment; uncertainty as to what equipment is available; inconvenience of using equipment in portables; reduced availability of popular tapes; and shortage of programming suitable to curriculum objectives.

The board produces an AV catalogue for schools every two years with annual updates. This is the primary source of information at all levels; although all those interviewed are familiar with TVO publications, these tend to be less used than the board-produced documents.

Questionnaires show that 11 elementary and four secondary teachers have at some time attended media-related workshops; the media centre itself provides no video training.

MICROCOMPUTER USE

At the Rocky Board, computer use varies from school to school, although the number of computers (including ICONs and Apples) increases each year. There is a reported emphasis on incorporating computers as an instructional tool in all departments. Sixteen of the 25 elementary teachers responding to the questionnaire have used computers this year (six have used them in previous years, and three have never used computers in the classroom). Four secondary teachers currently use computers in the classroom (two teachers at this level have used computers in previous years and seven others have never used computers).

Ten of the elementary and three of the secondary teachers have attended computer workshops; the media centre provides inservice programs, computer software and equipment servicing to the schools.

VALUE OF VIDEO AND COMPUTERS IN THE CLASSROOM

Video is considered to be an important teaching tool, primarily for its ability to reinforce learning, provide immediate and up-to-date information and add an emotional component to material. Also considered important is video's strength in presenting a believable and accessible image of a different reality; it is no surprise, then, that video use is reported most in elementary science and secondary geography classes.

Computers are seen as essential in preparing students for work in an information-age society. They are valued for their ability to reinforce and encourage writing, graphics, math, reading and word processing skills.

RELATIONSHIP WITH TVO

Many at this board are knowledgeable and positive about TVO, perhaps in part because of their participation in the "Science is Happening" quality education program that links TVO science programs to curriculum. There were requests for increased contact, however especially in the form of workshops (specifically in the effective use of television and video as a teaching tool, since this is not available through the board). TRT's are not particularly active at this board because of teacher transfers and retirements.

Particular suggestions included the establishing of a more aggressive connection between TVO and the Ministry of Education's curriculum objectives and requirements, the publication in English as well as in French of the support material for la chaine francaise programming and clarification of expiry date information.

SATELLITE CITY

Located in the greater Metropolitan Toronto Area, the Satellite City Board of Education is one of the largest in Ontario. It has 133 elementary schools with 46,000 students and 25 secondary schools with 29,500 students. The board's large learning resources centre handles video, film, small-format materials, computers and software.

Interviews were conducted with the director, the superintendent of program, the coordinator of learning resources and seven principals in four elementary and three secondary schools. Questionnaires distributed to all teachers in these seven schools were completed by 71 of 99 elementary and 91 of 242 secondary teachers. No focus group was conducted at this board because of scheduling difficulties.

AREAS OF CHANGE

Curriculum is the emphasis here: the board has an ongoing curriculum development process that produces guidelines that are sold at a profit to other school systems in North America and Europe. The learning resources centre coordinator ensures that lists of all appropriate books, films and videos are included in these guidelines.

Other areas of change include the growing need for English-as-a-second-language instruction to meet the needs of the increasing immigrant population; the move to integrate students with little English into regular classrooms; the reconsideration of the student evaluation process to allow for more on-going feedback; and a study of the implications of the government's new policy to postpone streaming until after grade nine.

THE CHANGE PROCESS

The Ministry's CRDI change process has been gradually adopted by the board. The commitment to change has been reinforced by increasing teacher input into curriculum change and by providing resources for extensive professional development. Schools have been organized into groups of ten for training in implementing changes in curriculum, but the board's large size makes it difficult to ensure adequate involvement for each individual.

TELEVISION AND VIDEO USE

The board's large learning resources centre has an extensive collection of VHS videotapes. Eighty percent of the board's videos come from TVO's VIPs service (the coordinator prefers the higher quality image of TVO-dubbed tapes to the mixed results of off-air dubbing). While inventory is kept at the learning centre (and indexed in the board's much appreciated AV catalogue), extensive dubbing is done for school use, particularly of popular tapes. Over two-thirds of the secondary teachers and over half the elementary teachers report that their school or department has a videotape collection of its own.

Twenty-nine of the 71 elementary teachers responding reported current year use of video or television in the classroom (32 used tv or video in the past and 10 have never used them). At the secondary level, 60 of 89 teachers currently use video or tv in teaching (21 used these technologies in the past but not in the current year and eight have never done so). Some teachers prefer to use the off-air television signal - 12 elementary teachers use television only, 28 both tv and videotape and 21 video only. Television use is less frequent in secondary schools, with only two teachers reporting television use, 16 use of tv and videotape, and 63 videotape use only.

Use of video is expected to increase, particularly as the board's extensive film holdings age. With the increasing number of VCRs in the home, the learning resources centre coordinator foresees students taking educational videos home to catch up on work missed. All teachers report that VCR equipment is available, with roughly one-

third saying it must be booked in advance, the other two-thirds reporting equipment available any time or on short notice.

Teachers' reports indicate that training in using video has been limited, despite extensive inservice development opportunities and the availability of two staff at the learning resource centre to instruct in its effective use. Fourteen elementary and 17 secondary teachers have attended a television or video workshop for teachers.

MICROCOMPUTER USE

Computer use is extensive and highly encouraged in the Satellite City schools, particularly at the elementary level where 59 of 71 teachers responding used this technology in their teaching during the current school year (six have used computers in the past but are not doing so presently and six have never used them). Fifty of the 89 secondary teachers responding have used computers in the current year (18 have stopped using the technology; 21 have never used it).

Computers are used essentially to support curriculum rather than to enhance creative expression. In elementary schools, the primary uses are the teaching and reinforcing of concepts and word processing, with minimal use for graphics or computer programming. In secondary schools, word processing use is most prevalent, with other uses to teach and reinforce concepts and to develop programming skills, computer knowledge and graphics ability.

Fifty-seven elementary teachers and 49 secondary teachers have attended workshops on integrating computers into the classroom.

The current emphasis on computer use in the classroom can be seen to have at least temporarily redirected interest in video as a teaching tool, particularly at the elementary level. At the secondary level video use is still more prevalent.

VALUE OF VIDEO AND COMPUTERS

Television and video are considered to be useful for reaching visual learners, for motivating students and stimulating thinking, particularly in science, social studies, history and geography. Since computers are being used in this board to support curriculum rather than to prepare students for the work world or provide a personal creative tool, the technology is seen as valuable where repeated practice is needed, in business studies, for writing and for supporting research.

RELATIONSHIP WITH TVONTARIO

Again, at the Satellite City Board, TVO's programs and services are highly rated. In particular, they are appreciated by the learning services coordinator, who speaks highly of the workshops TVO conducts at his request. Others feel the need for more contact with TVOntario and specifically more training in the use of video. In this respect, the TRT volunteer teacher network that provides information and training to other teachers is described as modestly effective but underfunded. The suggestion was made that print support materials, although used to some extent as they are, might be more effective if more carefully targetted. There is strong support for the VIPs system, but concerns about the speed of processing tape orders.

CENTRETOWN BOARD OF EDUCATION

Centretown Board of Education is located in a south-central town that is home to successful manufacturing and telecommunications service industries. This board consists of 41 elementary schools, eight secondary schools and one specialized school with a total population of 18,130 students. The schools' video and computer needs are served by an instructional media centre.

Interviews were conducted with the director of education, the superintendent of educational services, the media coordinator and principals in five schools, three elementary and two secondary. Questionnaires distributed to all teachers in these five schools were completed by 29 of 45 elementary and 72 of 116 secondary teachers. Eleven teachers attended the focus group session.

AREAS OF CHANGE

At the Centretown Board, curriculum has been the main emphasis, involving a shift in teaching strategies to increase activity-based, child-centred and collaborative learning. Five main areas of curriculum change were identified: enhancement of whole language across the curriculum, with a particular focus on literacy; familiarization with special education, in order to integrate students with exceptional needs into regular classrooms; implementation of Ministry of Education documents such as curriculum guidelines; adoption of computers across the curriculum; and, at the secondary level, a shift to independent study in grades 12 and 13 and a closer partnership between student and teacher.

CHANGE PROCESS

Centretown pioneered its five-stage model for curriculum implementation prior to the Ministry's instituting the CRDI system. The board characterized its approach as less linear or top-down than the Ministry's. Innovative teachers are encouraged to play a central role. At this board, the Ministry's documents are adapted and

implemented by curriculum writing teams of superintendents and interested principals and teachers. In keeping with Centretown's participative orientation, training of school personnel in newer developments in education consists largely in those interested being active, involved and serving as role models for others.

TELEVISION AND VIDEO USE

The media centre houses a variety of formats of tapes and video equipment, the latter purchased through TVO's lease-buy program. Eighty percent of the programs at the centre are taped off-air, and 70 percent of these are from TVO. The programs most used at this board are TVOntario's, with science and literature programming most popular at both the elementary and secondary levels. Twenty-one of the 29 elementary teachers responding said they had used television or video in classroom teaching in the current school year (eight have used this technology in the past but do not do so presently). At the secondary level, 45 of 72 teachers responding report use of tv or video in the current year (19 used tv or video in the past, eight never have).

All participants at the board level predict an increase in the use of video in the next few years, primarily as a result of the continuing shift away from film. The media coordinator also expects more use as a result of the centre's new catalogue, which will increase knowledge of what is available. While this expected increase in video use will likely lead to a growth in the demand for VCRs (approximately 150-200 more throughout the board), current availability of equipment is not considered by elementary teachers to be a problem: 60 percent report that TV sets and VCRs are easily available on short notice. However, at the secondary level, 80 percent of teacher respondents say that that equipment must be booked in advance.

With regard to training, 13 elementary and 16 secondary teachers surveyed have attended TVOntario video workshops. Recently, training has been conducted at each school by the resident TVO-trained TRT, a volunteer member of a system of networking and information dissemination that is seen very favorably throughout the board.

MICROCOMPUTER USE

Twenty-five elementary teachers report using computers this school year (three have used them in the past but not in the current school year; and one has never used them). At the secondary level, 26 teachers reported computer use this school year (11 have stopped using computers and 35 have never used them).

At the elementary schools, the Commodore series (especially the C64) was more common than Icons, with computers present in every classroom at an approximate ratio of one computer to every 20 students. The most common model in the secondary schools is the Icon, although IBMs and the Commodore series are also in regular use. One secondary school has been chosen for an experimental project on modem-linked computer networks. Mixed results are reported, seemingly because computers are still being used as stand-alone lab-type work stations despite the networking capability.

VALUE OF VIDEO AND COMPUTERS IN THE CLASSROOM

Video is considered to have tremendous value in both elementary and secondary schools, primarily because of its ability to give a visual, experiential dimension to concepts (hence, for example, the popularity of TVO's science series). Computers were given a similarly high rating and considered particularly valuable in elementary level work, notably in word processing. In secondary schools, computers were highly thought of by those with a keen interest in their capabilities, especially word processing, spread sheet calculating and music training.

RELATIONSHIP WITH TVO

All participants regard TVO in a favorable light; Centretown has long enjoyed a strong relationship with TVOntario, which is variously described as helpful, responsive and dedicated to advancing education. Some suggestions for enhanced service were offered, the most common of these being for more current Canadian-oriented programming on subjects ranging from environmental studies and Canadian politics to curriculum updates and educational methodologies. TVO material was seen as preferable to print texts as a

source for up-to-date information on changes in society such as free trade. In this same vein, it was suggested that TVO more frequently release programming that accompanies new curriculum at the same time that the new guidelines were distributed by the Ministry, thus facilitating incorporation of video components into board adaptations of guidelines. As mentioned above, the TRT at this board is particularly active.

There was also an expressed desire to consolidate the board's close and comfortable relationship with TVO through follow-up or second-stage teacher training on video use. Two more narrowly-focussed suggestions were for minute-to-minute accuracy in broadcast times published in *School Broadcasts* and *Horaire Scolaire* (particularly important to this board given their reliance on off-air taping) and for clear definitions of copyright law affecting use of video in the classroom.

RIVERSIDE BOARD OF EDUCATION

The Riverside Board is located in an urban community in the eastern part of the province. The board consists of 31 elementary schools with 8,200 students and 10 secondary schools with 7,500 students.

Interviews were conducted with the director, the superintendent of educational services, the coordinator of the media centre, and principals of five schools, three elementary and two secondary. Questionnaires distributed to all teachers in these five schools were completed by 34 of 64 elementary and 39 of 146 secondary teachers. The focus group was attended by 14 teachers and one principal.

AREAS OF CHANGE

Changes in philosophy at the Riverside Board have resulted in a decentralization of the decision-making process, allowing schools greater responsibility. In addition, the board has adopted a 12-year strategic planning process which includes input from students, community members and business leaders as well as from teachers and administrators. Riverside is also developing a curriculum management plan that defines the roles and describes the responsibilities of the director, superintendents, principals, vice-principals and teachers. The place of technology in administration and instruction is being examined and exchange programs are being developed to broaden students' global perspective.

At the elementary level, curriculum changes include new approaches in values education, science education, whole-language instruction and activity-based learning. At the secondary level, new programs were introduced in science, business education, mathematics, social science, English and media literacy, in keeping with the requirements of the Ministry's Ontario Schools: Intermediate and Senior policies.

THE CHANGE PROCESS

At Riverside, the Ministry's CRDI process is used to facilitate decentralized decision-making. Initial planning to decide what kinds of changes are needed is followed by the determination of the kinds of strategies appropriate and the resources necessary to support the board's approach. Then the kind of in-service training needed to implement the proposed change is defined, implementation and writing teams are formed and in-school workshops are conducted. The board has a research department that evaluates the outcome of some of the changes implemented.

VIDEO AND TELEVISION USE

Thirty-five percent of the media centre's video collection is TVOntario programming; this proportion is not expected to change in the next few years. The majority of videos were acquired from such sources as Marlin Motion Pictures, International Tele-Film, Multi Media, NFB and Magic Lantern. Ten of the 34 elementary teachers responding reported currently using television or video in their classrooms (18 report having used it in previous years but not in the current year and six have never used video). At this level, video is used for science, language arts, social studies and French as a second language.

Use of video and television is more prevalent among the secondary teachers who completed questionnaires: 26 of 39 used television or video during the current school year (four used video in the past and nine have never used it). Programming is used in high school mainly in geography, history and English. Almost half of all teachers responding use both video and broadcast television in teaching, while only one at each level use broadcast television alone. The teachers' primary source of information about the videotapes available is a centre-produced film and video catalogue.

At Riverside, video use is increasing, particularly as the use of film declines. However, several impediments to use are reported: unavailability of highly popular videos, particularly for those that support core work; shortage of equipment; small size of monitors' screens versus large classes; and lack of training in the effective use of video. Only four elementary and seven secondary

teachers reported having attended a video workshop, even though the media centre does offer in-school workshops upon request to teachers, librarians and principals. Four teachers were trained as TVO workshop specialists but because of their classroom duties have few opportunities to conduct sessions for other teachers.

MICROCOMPUTER USE

There is a strong emphasis on computers in education at Riverside even though the board has few computers. Riverside's choice being the Apple system, the board was ineligible for Ministry grants to assist in computer purchase. In secondary schools computers are generally arranged in labs, whereas in elementary schools in-class use is more common. Computers are used mainly for mathematics, science and business courses and for word processing in all subjects. The shortage of educational software is seen as a difficulty at both elementary and secondary levels.

There are numerous in-service programs at Riverside, with high reported teacher attendance. Eleven elementary and eight secondary respondents have attended computer workshops.

VALUE OF VIDEOS AND COMPUTERS

All interviewees attribute great importance to educational technology. Video is seen as a tool that enhances learning by providing visual stimulation, demonstrating processes and "making things look real." Video is considered to enhance group work as well as individual study, while computers are judged to be excellent tools for independent learning, particularly for special education students. Providing teacher training to enhance computer use is seen as essential.

RELATIONSHIP WITH TVONTARIO

At Riverside, as at other boards, there is strong support for TVOntario programming. There is also, however, some concern about the lack of direct contact between TVO and those at the media centre, principals and teachers, and in particular, about the perceived decline in the number of workshops, which are considered to be very effective. TVO is regarded as a primary source of information on integrating television and video programming into classroom teaching. A TRT workshop was given at the board two years ago and a TRT system is in operation in the board. Subsequent to this research, in September 1989, TVOntario staff participated in the initial stage of a board pilot project that will result in over 200 teachers learning about the technology's effective use in the classroom.

Questions were raised about inconsistencies in the distribution of print support and promotional materials. In addition, concerns about copyright infringement in the use of video in the classroom and frustration about misleading expiry dates were thought to discourage some teachers from ordering tapes.

INTERVIEWS

WITH MINISTRY OF EDUCATION OFFICIALS

In striving to increase our understanding of how television and video fit into all levels of the school system, we sought out Ministry officials' points of view. To provide this essential element, interviews of about one hour each were held during December 1988 and January 1989 with the six Ministry officials listed here. Their position titles at the time of the interview are provided.

Wally Beevor, Assistant Deputy Minister; Learning Program Division

Maurice Poirier, Director; Computers in Education Centre

Shannon Hogan, Director; Centre for Early Childhood and
Elementary Education

Sheila Roy, Director; Centre for Secondary Education and
Adult Learning

Howatt Noble, Director; Policy, Research and Analysis

John Bonner, Manager of Research; Policy, Research and Analysis

The interviews followed an established sequence that included several questions in each of the major areas of the study: current and recent areas of change in the school system, how the change process operates, use of television and video, use of microcomputers and the relationship between the Ministry and TVOntario. The central points made by the respondents are summarized under those headings.

Current and Recent Areas of Change in the School System

- Ministry curriculum guidelines have become more extensive, making it easier for boards to develop their own curriculum documents. A greater decentralization of curriculum funds and responsibility is helping the boards find the necessary resources and train their teachers.
- Recent elementary guidelines have updated the curriculum in science, children's literature and junior geometry. The central document *Formative Years* is being revised to include recent discoveries about child development, learning styles and curriculum development.
- New secondary guidelines are increasing emphasis on connecting the curriculum with students' experience and situation and on addressing social and environmental issues.
- In computer technology, the emphasis is on broadening the specifications for hardware eligible for subsidies, developing software portability and supplying funding for teacher training and special-purpose machines.
- The following policy issues are receiving attention: reduction in class size; means of student retention; tension between pressures toward centralization and decentralization of responsibility and decision making; equitable distribution of tax revenues to promote equal opportunity; and broadening of the Learning Materials Program.

How The Change Process Operates

- Awareness of the Curriculum Review, Development and Implementation model (CRDI) is widespread; adoption is growing though not complete.
- CRDI provides the framework for a process; it is not a detailed prescription.
- The CRDI terminology is widely in use, but more monitoring of results is needed.

Use of Television and Video

- Officials realize that they have only anecdotal information about the current use of video in schools and that use varies greatly among schools and boards. Even so, those spoken to expect use to increase in the coming years with the spread of VCRs, more video programs and better-quality programs. Officials look to TVOntario for information about video use and are pleased that this research is underway.
- A number of benefits of video were mentioned by one or more of the officials interviewed: video programming brings a deeper understanding of the world of work, brings a lesson to life, makes for better teaching practices, offers an additional teaching resource, provides means of showing groups such as women and handicapped people in positions of responsibility and makes the classroom more exciting.
- The use of video was seen to be closely related to teaching style. Teachers who seek out a variety of experiences for their students and who see themselves as a manager of resources for their students are more likely to use video. Integrating video with other teaching aids was considered as important.
- The Ministry has produced at least two videos for teachers to introduce new policies or programs. These are intended both for use in group discussions and for teachers to take home for individual viewing. This use of video is expected to increase.

Use of Microcomputers

- Ministry officials question the extent to which computers are used and the sophistication of some computer activities.
- As with video, the use of computers is thought to be more common with teaching styles that focus on providing resources and varied activities.

- The need for additional educational software particularly that which stimulates activity and creativity, was mentioned by several officials.
- The Ministry is relaxing its rigid hardware specifications. It foresees a future emphasis on distance education and the use of computer communication systems by students.
- Development of videodiscs which combine benefits of video and computers for use in schools is expected in the future.
- The widespread enthusiasm about computers causes some concern. One official is concerned that computers mistakenly create the impression that learning is easy and another that computers may adversely affect children's interactions with each other.

Relationship with TVOntario

- The respondents' familiarity with TVOntario's school programs and services was admittedly slight, but the general impression of them was very favorable. TVOntario was encouraged to promote itself more actively at the Ministry.
- Additional promotion aimed at the teachers was recommended as well. According to Ministry opinion, TVO needs to increase teachers' awareness of programs.
- Ministry officials feel that their involvement in the early stages of production design will lead to more effective programs. They also express a need for new programs, in particular for French-language schools programming, for ESL and FSL programs and for programs in adult and continuing education.
- Respondents wish to know more about TVOntario's long-term perspectives on educational technology and about plans for computer conferencing.
- Some frustration is expressed with the high price charged by TVOntario as a production house. This has forced the Ministry to use other producers; however, their lack of educational experience is recognized as a problem.

GLOSSARY

CRDI	Curriculum Review, Development and Implementation. This process for incorporating new curriculum was developed and introduced in 1986 into Ontario school boards by the Ministry of Education.
Icon	The Icon microcomputer system developed and supported by the Ontario Ministry of Education.
NFB	National Film Board of Canada. The NFB is now actively promoting its programs on videocassettes to schools.
OAC	Ontario Academic Credits are the senior secondary school credits needed for university entrance.
OAIP	Ontario Assessment Instrument Pool. A Ministry produced database of test questions and instruments.
OESS	Ontario Educational Software Service. Housed at TVOntario, OESS technically evaluates and distributes software for Icon and IBM EdNet computers.
ONTERIS	Ontario Education Resources Information System. A database listing education policies, documents, materials and research reports.
OS:IS	Ontario Schools: Intermediate and Senior Divisions. The 1984 policy guide setting out options and requirements for secondary school completion.
TRTs	One volunteer Television Resource Teacher has been selected in each school to receive and distribute publications about TVOntario programs and services. Since this system was introduced in 1982, many TRTs have attended TVO workshops about using television and video as a teaching tool.
VCRs	Videocassette recorders.
VIPS	Videotape Program Service. This non-profit TVOntario service sells, at cost, videocassette copies of programs produced or acquired by TVOntario to educational organizations and institutions in Ontario.

NOTES

1. Ontario Ministry of Education, *Curriculum Policy: Review, Development and Implementation Cycle*, Draft Document, Toronto 1986.
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3. Alison Wilson, *Market Performance: Report on Elementary and Secondary In School Utilization*, TVOntario, Market Research, July 1985.
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5. Bureau of Broadcast Measurement Survey, Spring 1989.